Ameren Electric Planning Comments
on
April, 2005 Draft
"Evaluating the Potential Impact of Transmission Constraints on the Operation of a Competitive Electricity Market in Illinois"
by
University of Illinois at Urbana-Champaign
and
Argonne National Laboratory Report
for
The Illinois Commerce Commission

This study was commissioned to assess the condition of the electric transmission system in Illinois and to explore the opportunities for market participants, operating in a competitive electric energy market, to exploit the transmission system using economic or physical offer strategies. The study team attempted to use computer modeling of the transmission system in a hypothetical market to reach conclusions on these issues. As with any study of this type, the assumptions used to create the modeling simulation play a significant part in the results that are derived.

In addition to particular findings in this report, the central question statement, *"Can a company, acting on its own, raise electricity prices and increase its profits?"* is answered in the affirmative. However, it is important to note the distinction between this hypothetical answer and a real-world answer which would state that it is affirmative **only if** the rules of the markets operating in Illinois (PJM and MISO) are ignored **and** that the market monitoring agent that is integral to both markets is assumed to be absent. This is an important distinction and should also be recognized when reviewing the results of this academic exercise.

Ameren technical staff has reviewed the details of the report and have compiled a list of specific comments about aspects of the report that are offered in the interest of discussion, understanding certain findings, and potentially as areas to explore or refine for future studies. These comments are:

- There is a study assumption that there is a single energy market operating in Illinois. This simplifying assumption doesn't reflect the reality of the large interstate PJM and MISO markets of which ComEd and Ameren are a part. These large markets invalidate the study's conclusions about market concentration.
- The EMCAS modeling, which offers a rigorous algorithm to simulate markets, in essence uses only a Day Ahead (DA) market strategy. There is significant interaction for market participants with the DA and Real Time (RT) markets, which currently are the norm in PJM and MISO, since the markets are settled separately. This interaction is important to capture because it allows Load Serving

Entities to hedge DA using both physical and virtual bids and Financial Transmission Rights (FTR).

- The study did not include bilateral contracts/transactions. While this is not necessarily significant for Illinois companies, other than the proper modeling of grandfathered capacity contracts, it will likely impact the performance of outside areas which in turn will have some interaction in Illinois. Similarly, the impact of imports and exports with the "Illinois market" in the study will affect the results. As an example, the control of the phase shifting transformers can significantly impact congestion.

- Recognizing that this study was originally completed in 2003, the 2003 model that was used was appropriate but does not capture some very important projects that Ameren (and probably others) have already installed and will install prior to 2007. Noticeably, the Holland-Mason-Tazewell upgrade is unaccounted for in the model and its absence drives the results in the Peoria area. The text of the report explains that the project is scheduled for completion but this fact may be easily overlooked when the preponderance of graphs and text warn of "CONGESTION" in the Peoria area absent the upgrade.

- Fuel price variability is not addressed as part of the analysis of generation behavior. A Monte Carlo simulation could be used to attempt to capture this factor, since virtually all new generation is gas fired. In the study simulation, the 77% of all generation that is "legacy" generation (coal, nuke) supplies 98% of the energy. While natural gas prices are not projected to fall, the relative ratio between fuel types may change and produce drastically different results.

- The EMCAS projection model uses last week's averages for price projection. Without generation outages (Conservative Assumptions), this seems to be a reasonable assumption but in the Case Study where generation outages will undoubtedly drive prices this assumption might need to be reviewed.

- The EMCAS projection model did not inject transmission outages. It is assumed that this statement refers to a forced outage scenario not to the manner of dispatch. Both the PJM and MISO markets use a Security Constrained Economic Dispatch which takes into account constrained elements as well as a contingency set of outages when calculating unit dispatch.

- While data from public sources is excellent for demonstrative purposes and may be all that is available absent regulatory orders, the accuracy of any relative analysis is determined by each entity's accurate reporting.

- Excess congestion costs are paid to TransCos in the EMCAS model. This is not representative of the MISO and PJM markets. The results may change if the true dollar flow found in the PJM and MISO markets were simulated.

- One of the most significant features affecting the current markets and proposed joint and common markets is the presence of FTRs. This study did not account for FTRs which, while a good assumption for an analysis, is not predictive of actual results or conditions.

- Both existing energy markets have offer caps and FTRs to hedge congestion costs. However, included in this study is the assumption that, "There are no "tariffs or price caps to limit charges to consumers".

- For the purposes of solution techniques, the EMCAS model "aggregates" tie lines into a smaller set. This will dilute the real interaction of non-Illinois companies among themselves and thus their interaction with Illinois companies.

- Unlike the existing markets, PowerWorld did not enforce external transmission line limits for 138 kV and 161 kV circuits. For centrally located utilities, this assumption is reasonable. However, external constraints often lead to generation redispatch for utilities that are on the border, which would skew the results.

- The PowerWorld simulation also did not account for the market to market and market to non-market interactions as stated in the report. "The large eastern markets (PJM and NYISO) and large southeastern markets, **which could have an impact on the behavior of the Illinois markets** (emphasis added), are not represented here." This is a critical omission, especially given that parts of Illinois are now in the PJM market.

- As with many large scale aggregate studies, constant bus distribution factors were used in this study. Given that this assumption does not hold well for some loads in states adjacent to Illinois, a reflection of this might warrant further study.

- Again, recognizing the 2003 nature of the original data, it is still worth noting that AmerenCIPS is assumed in this study to be retiring 304MW of coal fired generation before 2007. No such retirements have been declared at this time.

- While GenCos are expected to be "stand-alone" profit centers, there is apparently no allowance to recover capital costs in analysis. While the report explains that "this is a short term analysis", the exploration of market behavior that this study purports to address requires an economic sustainability test.

- While not as widespread as in other states, there are some significant operating guides that control congestion on the transmission system in Illinois. No operating guides were modeled in this study. These operating guides should be reflected in the contingency set used to control the analysis. As an example, the Gibson City generating units and area see significant congestion in the study. However, a special protection scheme is in place that mitigates congestion associated with Gibson City dispatch. Likewise, there are several transmission lines that are shown to have significant congestion for which the congestion is managed by agreement with external entities, e.g. Fredericktown - Fredericktown Tap.

- The Constellation Power Source's Holland Plant has generator step-up transformers (18/345 kV) that the study shows constrained 2241 hours a year. This is most assuredly a data error since the plant is relatively new and the generation has not been uprated. The effect of this error will clearly impact the illustrative results.

  Similarly, the Pinckneyville generator step-up transformers are also shown as limiting, which is not accurate.

- The "Market" analysis which examines the magnitude of dispatched generation, aggregated by company, against the total generation understates the importance of the PJM and MISO market footprints. Unless transfers into or out of Illinois are limiting, generation in both footprints will minimize the impact of any local concentration. Likewise, using the HHI or 20% levels of generation that are discussed in the report neglects the fact that some of this generation is exported out of Illinois. Having a concentration of economical generation owned by a market participant in Illinois to the extent that it is dispatched out of Illinois does not seem troubling.
- The Conservative Assumption modeling eliminates the biggest drawback of nuclear and coal fired steam generating units, that being outages and maintenance. It is not surprising that this meant that low production cost units, whether in or out of Illinois would be used more.

In summary, the study verified the importance of a robust transmission system to facilitate power transfers for an efficient market. And to the extent that generators could escape detection by market monitors and withhold generation profitably, practically, and without legal repercussion, the study identifies that "...withholding other units... provided no benefit. It is the transmission limit that resulted in positive profit." This sentence is the capstone of the report. Without a doubt, localized congestion areas or narrowly constrained load pockets can, absent other factors, lead to price manipulation by generation resources in that area. So the rhetorical question *"Can a company..., increase profits"* may be true in the abstract case in certain transmission areas as demonstrated by this study. But the simplifying and sometimes erroneous assumptions or facts used in this study exclude important relationships and certain data errors do not permit the study to be predictive of actual experience. The most important finding of the study is the rigorous demonstration that the transmission system is a vital part of an energy market. For even if the enforcement of existing market rules by an independent market monitor did not prohibit the types of behavior that led to elevated prices in the study (a highly unlikely assumption), a robust transmission system would tend to mitigate the impact. As MISO and PJM are charged with the nondiscriminatory operation of the transmission system in Illinois and throughout their footprints, any company's ability to "...acting on its own, raise electricity prices and increase its profits..." is severely undermined. In the real world, we would answer the hypothetical question in the negative, not the affirmative.

We appreciate the opportunity to offer comments on the draft report of the study and would welcome further discourse if the Commission desires.